

Notice: After doing some follow-up data cleaning, we have generated better estimates. These estimates are not terribly different from our initial estimates, but for the purposes of replication and in the interests of transparency to the public, we report our revised estimates:

The Effects of Consolidation on Local Radio Advertising Prices
Population-Weighted Estimates
(T-statistics in Parentheses)

	Model 1 – One-way fixed-effects	Model 2 – Two-way fixed-effects
	Ln(Price of Radio Advertising during Morning Drive-time)	Ln(Price of Radio Advertising during Morning Drive-time)
Ln(Population)	-.15* - (1.75)	-.16* - (1.84)
Ln(Real Income)	.48*** (6.94)	.46*** (6.70)
Ln(Local HHI)	.02** (2.35)	.04*** (3.91)
Ln(National HHI)	-.06*** (2.63)	-
Ln(# of Owners)	-.04 (1.46)	-.02 - (0.99)
Ln(Local-National)	-.02*** - (5.11)	-.02*** - (4.96)
Ln(RealGDP)	3.31*** (11.74)	-
Constant	-16.87*** -(10.19)	-3.77*** - (3.51)
F-statistic	169.04***	171.87***
Adjusted R-squared	.97	.97
N	1284	1284

(*** indicates significance at the 1% level, ** indicates significance at the 5% level, * indicates significance at the 10% level)

The biggest change is that the coefficient on National HHI is now negative and significant. However, we have limited confidence in this particular finding, because, unlike the other variables, National HHI is very sensitive to changes in population-weighting. We believe that the estimate on National HHI may largely be driven by the high correlation between National HHI and the Real GDP, and Real GDP may drive more of the growth in advertising price in large population centers. We list non-population-weighted results to illustrate our point:

The Effects of Consolidation on Local Radio Advertising Prices
Non-Population-Weighted Estimates
(T-statistics in Parentheses)

	Model 1 – One-way fixed-effects	Model 2 – Two-way fixed-effects
	Ln(Price of Radio Advertising during Morning Drive-time)	Ln(Price of Radio Advertising during Morning Drive-time)
Ln(Population)	-.21 - (1.49)	-.22 - (1.50)
Ln(Real Income)	.23*** (7.25)	.25** (2.28)
Ln(Local HHI)	.04** (2.38)	.04*** (2.91)
Ln(National HHI)	-.01 (0.27)	-
Ln(# of Owners)	-.02 (0.60)	-.02 - (0.57)
Ln(Local-National)	-.01** - (2.24)	-.01** - (2.25)
Ln(RealGDP)	2.30*** (7.25)	-
Constant	-16.87*** -(10.19)	-1.85 - (1.09)
F-statistic	559.18***	525.72***
Adjusted R-squared	.96	.96
N	1284	1284

(*** indicates significance at the 1% level, ** indicates significance at the 5% level, * indicates significance at the 10% level)

The coefficient on National HHI drops precipitously and is the only concentration variable that loses its statistical significance in the non-population-weighted regression. Notice that the coefficient on log(RealGDP) is also lower, but still highly statistically significant.

We relate the instructions for study replication on the next two pages.

With the complete data set, which is contained in the Excel spreadsheet CompleteDataRadio.xls, copy and paste directly from Excel to the editor in Stata version 7.0. (You could also choose to import the file into Stata.) See the references at the end of this piece and the redacted Excel spreadsheet called RedactRadio.xls for information on data sources and methodology used in creating variables.

To create real-dollar variables, use the following commands in Stata:

- 1: g RealGDP = (gdpfrombea)/(cpifrombls¹)
- 2: g realmdrv = (cpmfor1849formorningdrivefrom²)/(cpifrombls)
- 3: g realincome = (percapitaincomeformsafrombea³)/(cpifrombls)

You have now converted your dollar variables from nominal to real dollars. Note that we just divide by the CPI to do this.

To replicate our results, you now need logged variables. To generate these, use the following commands in Stata.

```
4: g logRealGDP    = ln(RealGDP)
5: g logrealamdrv  = ln(realamdrv)
6: g logrealincome = ln(realincome)
7: g loglocalhhi   = ln(localhhifrombia4)
8: g lognationalhhi = ln(nathhifrombia5)
9: g logpop        = ln(populationfromsqad6)
10: g loglocalnational = ln(localnationalfrombia7)
11: g logown       = ln(numberofownersfrombia8)
```

We also include a Stata data set, (if and only if you have the required licenses for the relevant underlying data), called `giveradio.dta`, which includes both the raw and transformed variables.

To the extent you read our paper, then you realize that we used so-called “fixed-effects” to estimate our model⁹. Fixed-effects are easy to include in standard regression format using the `xi: reg` command in Stata 7.0. We also used population weights. The first estimation used one-way fixed effects with population weights.

The command is:

```
xi: reg logrealamdrv logrealincome logRealGDP logpop loglocalhhi logown
lognationalhhi loglocalnational i.msa [iweight=populationfromsqad/meanpopfromsqad]
```

The second estimation is a two-way fixed-effects model. Because we’re including dummies for each time period to perform two-way fixed-effects estimation, we cannot include `lognationalhhi` and `logRealGDP`, as these are variables that only vary over time and do not vary across markets. The command is:

```
xi: reg logrealamdrv logrealincome logpop loglocalhhi logown loglocalnational i.msa
i.date [iweight=populationfromsqad/meanpopfromsqad]
```

In order to perform the non-population weighted regression that we’ve also presented here, simply use the following commands:

One-way fixed-effects:

```
xi: reg logrealamdrv logrealincome logRealGDP logpop loglocalhhi logown
lognationalhhi loglocalnational i.msa, robust
```

Two-way fixed-effects:

xi: reg logrealamdrv logrealincome logpop loglocalhhi logown loglocalnational i.msa
i.date

References and Data Sources:

¹ <<http://www.bls.gov>>

² SQAD Spot Radio Database, 1995-2000 -

³ Bureau of Economic Analysis, 2002, Regional Accounts Data, Local Area Personal Income <http://www.bea.doc.gov/bea/regional/reis/drill.cfm>

⁴ BIA MasterAccess Database – sum of squared local market shares for all owners in MSA

⁵ BIA MasterAccess Database - – sum of squared national market share for all owners in nation

⁶ SQAD Spot Radio Database, 1995-2000 -

⁷ BIA MasterAccess Database – each owner’s local market share multiplied by each owner’s national market share, summed for all owners in MSA

⁸ BIA MasterAccess Database – – number of owners in MSA

⁹ Econometric Analysis of Panel Data, Badi H. Baltagi, John Wiley & Sons, 1995